

GEOS-Chem Newsletter, June 2018

GEOS-Chem Support Team

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The GEOS-Chem v11-02 “Release Candidate” is now ready to use!

Previous major release	Current release candidate	Pending major release
GEOS-Chem v11-01-public	v11-02-release-candidate (aka v11-02-rc)	GEOS-Chem 12.0.0 aka v11-02-final in the old version number system
RELEASED 01 Feb 2017	RELEASED 22 Jun 2018	RELEASE TBD
GC v11-01 online manual ↗	GC v11-02 benchmark history	

We are happy to announce that as of 22 Jun 2018, the GEOS-Chem v11-02 release candidate version **v11-02-rc** code is now officially released! For a list of features in v11-02-rc, please follow [this link](#).

We have updated the GEOS-Chem manual (<http://manual.geos-chem.org>) with complete instructions on how to download and run GEOS-Chem v11-02-rc.

Evaluation period

We encourage all GEOS-Chem users to download and run v11-02-rc during the evaluation period, which will end on **Friday, August 3, 2018**. This will be your chance to “take GEOS-Chem v11-02-rc for a test drive”.

[Several user-reported issues](#) will be fixed during the evaluation period. If you should encounter any additional bugs, technical issues, or notice incorrect or inconsistent documentation in please notify us in one of the following ways.

- Open a new issue on the [GEOS-Chem repository issue tracker](#). (This is our new recommended method of reporting bugs or issues in the GEOS-Chem source code.)
- Contact us by email at geos-chem-support@as.harvard.edu.

At the end of the evaluation period, once we have resolved all of the reported issues, we will declare the version to be final.

New GEOS-Chem version numbering system

GEOS-Chem v11-02-final will also carry the designation GEOS-Chem 12.0.0. We are migrating to a purely numeric versioning system in order to adhere more closely to software development best practices.

For a complete description of the new versioning system, please see [our GEOS-Chem version numbering system wiki page](#).

The GEOS-Chem Git repositories are now hosted on Github

We have now moved the GEOS-Chem Git repositories from Bitbucket to Github. Using Github lets us easily assign a Digital Object Identifier (DOI) to any GEOS-Chem version.

We have created a page on Github (<http://github.com/GCST/>) where you will find the following repositories:

1. GEOS-Chem source code: <http://github.com/GCST/geos-chem>
2. GEOS-Chem unit tester: <http://github.com/GCST/geos-chem-unittest>
3. HEMCO data downloader: http://github.com/GCST/hemco_data_download

IMPORTANT!

**Please clone fresh copies of these repositories from Github
and discontinue use of the repositories on Bitbucket.**

We will eventually migrate the Git repositories for support software packages (e.g. GEOS-FP processing codes, Python plotting codes, netCDF Fortran codes) to Github as time allows.

Resources

For further information we invite you to consult the following resources::

- [A list of new developments by GEOS-Chem version](#)
- [GEOS-Chem narrative description](#)
- http://wiki.geos-chem.org/GEOS-Chem_v11-02
- http://wiki.geos-chem.org/GEOS-Chem_12

- http://wiki.geos-chem.org/GEOS-Chem_version_numbering_system
- http://wiki.geos-chem.org/GEOS-Chem_Unit_Tester
- http://wiki.geos-chem.org/Creating_GEOS-Chem_run_directories
- http://wiki.geos-chem.org/HEMCO_data_directories
- [GEOS-Chem standard emissions configuration \(by Christoph Keller\)](#)

Running GEOS-Chem in the Amazon EC2 cloud

Jiawei Zhuang has created a [tutorial](#) that shows how you can run GEOS-Chem “Classic” (GCC) on the Amazon Web Services EC2 cloud computing platform. A copy of the GEOS-Chem “gcgrid” data directories has been synchronized to the Amazon S3 storage system and is available for use with your GEOS-Chem simulations.

Jiawei is also exploring how to run GCHP on the cloud. Currently, GCHP simulations using a single node are possible using the open-source GNU Fortran compiler. He writes:

As you know, I've [gotten] [GCHP running on the cloud](#). I got enthusiastic responses at [the recent] GCA1 [meeting], presumably because GCHP is so hard to set up from scratch, and it is quite amazing to be able to run the model immediately on cloud platforms.

Running multi-node GCHP simulations in the cloud will require more work. Nodes of a dedicated computer cluster are typically interconnected with the very fast Infiniband network. But in the Amazon cloud, nodes are usually connected with Ethernet, which is several orders of magnitude slower than Infiniband. This will make GCHP simulations that require multiple nodes run more slowly than on a dedicated cluster. Jiawei is looking into potential solutions for this.

Jiawei has also created [a Python tutorial](#) that illustrates how to analyze data generated by GEOS-Chem on the cloud.

Other GEOS-Chem news

GCA1 presentations are now posted online

The First Regional GEOS-Chem Asia Meeting (GCA1) was held at Nanjing University of Information Science & Technology (NUIST) on May 21-23, 2018 with 115 participants from 26 institutions and 7 countries. This meeting was organized by the NUIST-Harvard [Joint Laboratory for Air Quality and Climate \(JLAQC\)](#).

We have now posted the [oral and poster presentations from the GCA1 meeting](#) online

Priorities for further model development

We have updated the [GEOS-Chem model development priorities wiki page](#) with the latest status reports from GC developers.

Please note that “ready to go in” indicates that work by the developer is considered complete. However, GCST time to implement may vary significantly depending on the structural updates or reworking required for compatibility with the latest version.

GCHP update

GCHP is currently up-to-date with GEOS-Chem v11-02e. GCHP v11-02, including all updates in v11-02f and the v11-02 candidate release, is currently being tested. GCHP v11-02 will additionally feature native resolution offline dust emissions developed by David Ridley (MIT) and lightning emissions developed by Sebastian Eastham (MIT), as well as a bug fix to improve performance when built with open-source GNU compiler GFortran.

We are continuing to collaborate with GMAO to improve GCHP performance and usability. Seb is spearheading the effort to acquire native resolution mass fluxes on the cubed sphere grid for input to GCHP. Lizzie Lundgren will be actively developing a shared GMAO MAPL repository to bring an updated version of MAPL into GCHP and feed our GEOS-Chem-specific updates back to GMAO. The new version of MAPL will include an improved I/O layer that we anticipate will speed up GCHP file I/O. Lizzie will also be working to remove the GMAO MAPL content included within GCHP that is not necessary for GCHP functionality.

We would like to sincerely thank you for your patience and understanding during the v11-02 / 12.0.0 release process. Happy modeling!

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